



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,031	06/08/2005	Friedrich Boecking	R.304748	8926

2119 7590 10/24/2006
RONALD E. GREIGG
GREIGG & GREIGG P.L.L.C.
1423 POWHATAN STREET, UNIT ONE
ALEXANDRIA, VA 22314

EXAMINER

GORMAN, DARREN W

ART UNIT PAPER NUMBER

3752

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/538,031	BOECKING, FRIEDRICH	
	Examiner	Art Unit	
	Darren W. Gorman	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-33 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 14-17 and 21-27 is/are rejected.
- 7) ☒ Claim(s) 18-20 and 28-33 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/08/2005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The IDS filed on June 8, 2005 is hereby acknowledged and has been placed of record.

Please find attached a signed and initialed copy of the PTO 1449.

Minor Claim Suggestions By Examiner

2. The following change(s) are recommended to improve clarity of the claims. The claims have been examined on the merits including the suggested changes below.

- In claim 18, on line 1, “wherein” should be deleted.
- In claim 18, on line 2, --needle-- should be inserted after “first nozzle”
- In claim 19, on line 1, “wherein” should be deleted.
- In claim 19, on line 2, --needle-- should be inserted after “first nozzle”
- In claim 21, on line 2, --first-- should be inserted before “nozzle needle”

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3752

Regarding claim 21, on line 5, the recitation “a second leakage chamber” is unclear since the claim has not positively recited a “first” leakage chamber.

Regarding claim 22, on line 3, the recitation “the first leakage chamber” lacks antecedent basis.

Regarding claim 23, on line 3, the recitation “the return stroke surface” lacks antecedent basis.

Regarding claim 24, on line 3, the recitation “the return stroke surface” lacks antecedent basis.

Regarding claim 25, on line 1, the recitation “ the control chamber” lacks antecedent basis.

Regarding claim 25, on line 2, the recitation “ the second booster chamber” lacks antecedent basis.

Regarding claim 26, on line 1, the recitation “ the control chamber” lacks antecedent basis.

Regarding claim 26, on line 2, the recitation “ the second booster chamber” lacks antecedent basis.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yalcin, EP 0 978 649, in view of Lambert et al., USPN 6,338,445.

Yalcin shows a fuel injector (see Figures 1 and 2) comprising: an injector body (12) having at least one first injection orifice (14) and at least one second injection orifice (16), a first nozzle needle (20) embodied as a hollow needle, a second nozzle needle (30) disposed coaxial to the first nozzle needle, the first nozzle needle being driven to control injection of fuel through the at least one first injection orifice and the second nozzle needle being driven to control the injection of fuel through the at least one second injection orifice, a first catch contour (39) embodied on the first nozzle needle, and a second catch contour (38) embodied on the second nozzle needle, whereby once the first nozzle needle opens a predetermined preliminary stroke (a), the first catch contour cooperates with the second catch contour and when an opening movement of the first nozzle needle exceeds the preliminary stroke, carries the second nozzle needle along with it. Yalcin further shows the second nozzle needle as not including a pressure shoulder. Still further, Yalcin shows the injector including a first leakage chamber (75), wherein the first and second catch contours cooperate with each other in the first leakage chamber (see Figure 1).

However, Yalcin does not expressly show the first nozzle needle being guided in a first guide of the injector body.

Lambert (see Figures 1 and 5) teaches providing a needle guide (portion of bore 11, which region 12c slidably engages) for an injector body (10) such that an outer nozzle needle (12) of a pair of coaxially arranged nozzle needles (12 and 18) may be guided within the injector body to ensure "that the outer valve needle 12 remains concentric with the nozzle body 10, in use" (see column 4, lines 14-22).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a needle guide, as taught by Lambert, with the injector body of Yalcin, in order to ensure that the first nozzle needle remains concentric with the nozzle body, in use.

7. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt et al., US Patent Application No. 2003/0052203, in view of Lambert et al., USPN 6,338,445.

Arndt shows a fuel injector (see Figure 2) comprising: an injector body (31) having at least one first injection orifice (44, 45) and at least one second injection orifice (46, 47), a first nozzle needle assembly (34, 35) embodied as a hollow needle, a second nozzle needle (38) disposed coaxial to the first nozzle needle, the first nozzle needle being driven to control injection of fuel through the at least one first injection orifice and the second nozzle needle being driven to control the injection of fuel through the at least one second injection orifice, a first catch contour (43) embodied on the first nozzle needle, and a second catch contour (42) embodied on the second nozzle needle, whereby once the first nozzle needle opens a

Art Unit: 3752

predetermined preliminary stroke (h_1), the first catch contour cooperates with the second catch contour and when an opening movement of the first nozzle needle exceeds the preliminary stroke, carries the second nozzle needle along with it (see paragraph [0025]). Arndt further shows the second nozzle needle as not including a pressure shoulder (see Figure 2).

However, Arndt does not expressly show the first nozzle needle being guided in a first guide of the injector body.

Lambert (see Figures 1 and 5) teaches providing a needle guide (portion of bore 11, which region 12c slidably engages) for an injector body (10) such that an outer nozzle needle (12) of a pair of coaxially arranged nozzle needles (12 and 18) may be guided within the injector body to ensure “that the outer valve needle 12 remains concentric with the nozzle body 10, in use” (see column 4, lines 14-22).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a needle guide, as taught by Lambert, with the injector body of Arndt, in order to ensure that the first nozzle needle remains concentric with the nozzle body, in use.

Allowable Subject Matter

8. Claims 18-20 and 28-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 3752

9. Claims 21-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

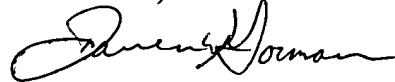
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents to Pataki et al., Cooke et al., Lambert, Lambert et al., and Perr et al., are cited as of interest. German Patent Document to Seifert is also cited as of interest.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W. Gorman whose telephone number is 571-272-4901. The examiner can normally be reached on M-F 7:30-5:00.

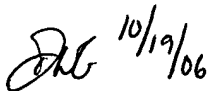
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Darren W Gorman
Examiner
Art Unit 3752



DWG
October 19, 2006